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1 SHEET

COMPLETE SPECIFICATION

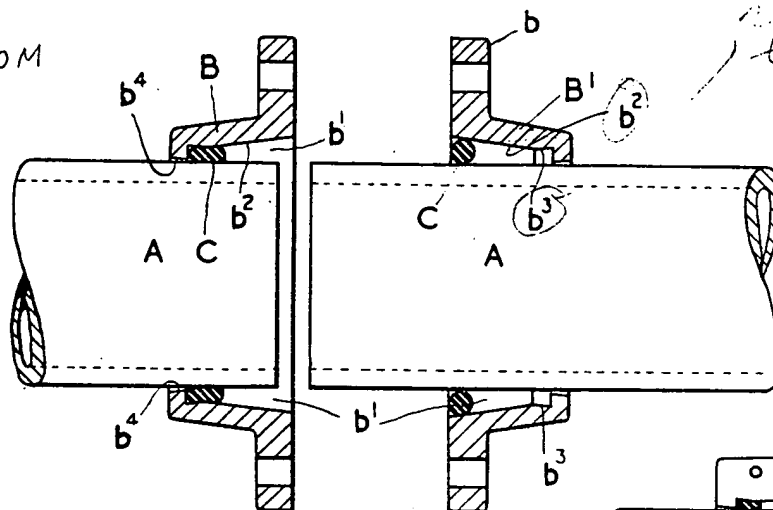
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2 pp spec  
HIGGINBOTTOM

FIG. 1

FIG. 3

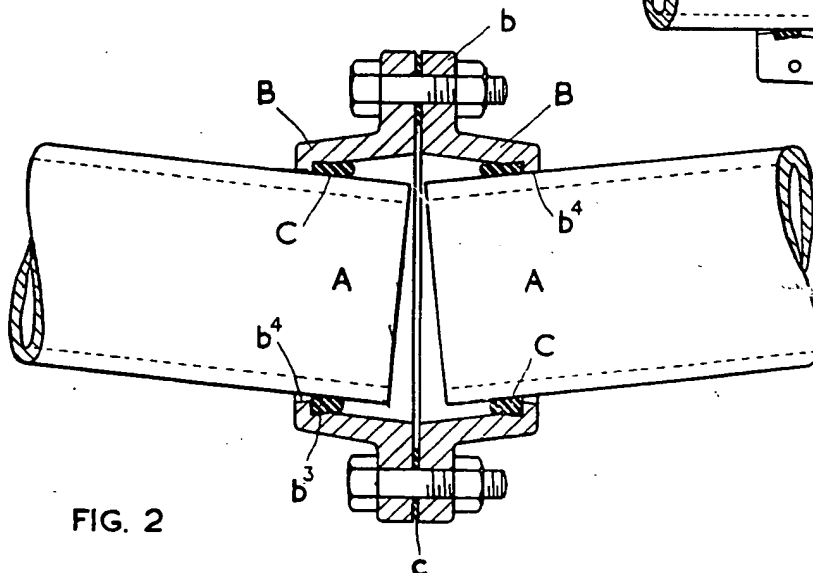
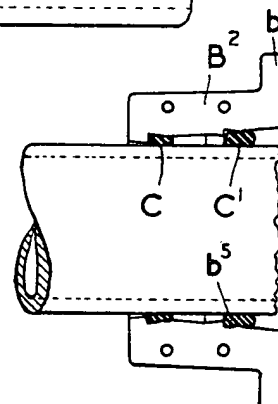


FIG. 2

# PATENT SPECIFICATION



Date of filing Complete

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## COMPLETE SPECIFICATION

### Improvements in Flexible Pipe or like Couplings.

We, JOHN RUSCOE & CO. LIMITED, a British Company, and JOSEPH HIGGIN-BOTTOM, a British Subject, both of Albion Works, Hyde, County of Chester, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

- 10 This invention relates to improvements in flexible pipe or like couplings of the type in which the coupling is formed in two halves bolted together through flanges on each half, a tapered bore being provided internally of each half coupling along which a resilient ring or packing washer is rolled as the coupling is assembled or dis-
- 15 connected to prevent leakage between the coupling and the pipe or the like.
- 20 According to the invention the coupling is constructed with each half coupling formed with a bore tapering from the flanged end, the end of the taper remote from the flange being provided with a reverse taper to receive the packing ring or
- 25 a portion thereof when the coupling is in position.

The invention will be described with reference to the accompanying drawings:—

- 30 Fig. 1 is a longitudinal section through the coupling showing one half in position on one end of a pipe and the other half in position for applying to the end of a second pipe;
- 35 Fig. 2 is a longitudinal section showing the coupling bolted in position joining two out of line pipes;
- 40 Fig. 3 is a longitudinal section of one half coupling applied to a damaged main or pipe.

As applied to the adjacent ends of two pipes A the coupling is formed in two halves B, B' adapted to be bolted together through circumferential flanges b. Each half coupling B or B' is formed with a

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bore b<sup>1</sup> tapering from the flanged end, the ends of the taper remote from the flange being formed with a reverse taper b<sup>2</sup> to receive a packing ring C or a portion thereof when the coupling is in position. The outer end of the coupling is flanged inwards to a diameter slightly larger than the diameter of the pipe A, the face of the flange b<sup>1</sup> adjacent the pipe being preferably tapered outwards to allow for deflection of one pipe A relatively to the other pipe A. The packing ring C is applied over the end of the pipe and is rolled down the taper b<sup>2</sup> on the coupling to enter the reverse taper b<sup>3</sup> at the flanged end thereof. 60

As applied to a trunk main only one half coupling B is employed which is bolted to the flanged outlet from the main.

In the repair of damaged mains or pipes, each half coupling B and B' is formed as two split collars with longitudinal flanges B<sup>2</sup> bolted together longitudinally of the pipe or main. The packing C is also jointed around the pipe or main. The coupling may be formed with a second taper b<sup>5</sup> to receive a second packing ring C' of larger diameter than the first to steady the coupling on the main or pipe A. The two tapers may be connected by a parallel portion b<sup>6</sup> in the bore b<sup>1</sup>. 75

The packing C is preferably in the form of a cord rubber ring which in drawing up the two halves of the coupling will roll a distance on the pipe equal to its circumference, whilst each half coupling will travel approximately twice this distance. As the ring reaches the reverse cone it expands into it and stabilises the coupling.

Sealing washers c or gaskets are provided between the adjacent flanged faces of the coupling. 85

In making a joint one half coupling B is applied over one pipe A and a packing ring C of a diameter that slight stretching 90

is required is fitted thereon. By drawing the half coupling from the position shown at the right hand side of Fig. 1 into the position shown at the left hand side of Fig. 1 the ring C is rolled along the pipe up the taper  $b^2$  and depressed. As the ring C reaches the reverse taper  $b^3$  it expands thereinto and stabilises the coupling. The tapered face  $B^4$  should be at a minimum angle of  $6^\circ$  to accommodate relative deflection of the ends of the pipes.

What we claim is:—

1. A pipe or like coupling of the type referred to in which each half coupling is formed with a bore tapering from the flanged end, the end of the taper remote from the flange being provided with a reverse taper to receive the packing ring or a portion thereof when the coupling is in position.

2. A pipe coupling as in Claim 1 adapted to be bolted to a flanged outlet from a main.

3. A pipe coupling as in Claim 1 in which each half coupling is formed as two split collars with longitudinal flanges adapted to be bolted together around a damaged pipe or main.

4. A pipe coupling as in Claim 3 in which the bore of each half coupling is formed with two second tapers to receive a second packing ring of larger diameter than the first to steady the coupling on the pipe or main.

5. A pipe coupling substantially as described with reference to Figs. 1 and 2 or Fig. 3 of the accompanying drawings.

J. OWDEN O'BRIEN & SON,  
Chartered Patent Agents,  
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### PROVISIONAL SPECIFICATION

#### Improvements in Flexible Pipe or like Couplings.

We, JOHN RUSCOE & Co. LIMITED, a British Company, and JOSEPH HIGGINBOTTOM, a British Subject, both of Albion Works, Hyde, County of Chester, do hereby declare this invention to be described in the following statement:—

This invention relates to improvements in flexible joint couplings, and more particularly for such couplings for pipes or mains.

The object of the invention is to provide a flexible joint coupling between adjacent ends of two pipes, or between a pipe and a trunk main or similar couplings.

According to the invention the coupling is formed in two halves with a tapered bore adapted to receive a flexible washer, circular in cross section, which is compressed by the tapered bore to form a joint between the coupling and the outer circumference of the pipe or main.

In carrying out the invention as applied to the adjacent ends of two pipes, the coupling is formed in two halves adapted to be bolted together through circumferential flanges. Each half coupling is formed with a bore tapering from the flanged end, the end of the taper remote from the flange being formed with a reverse taper to receive a packing ring when the coupling is in position. The end of the coupling is flanged inwards to a diameter slightly larger than the pipe diameter, the face of the flange adjacent the pipe being preferably tapered outwards to allow for deflection of one pipe relatively to the other pipe.

The packing ring is applied over the end of the pipe and is rolled down the taper on the coupling to enter the reverse taper at the flanged end thereof thereby.

As applied to a trunk main only one half coupling is employed which is bolted to the flanged outlet from the main.

In the repair of damaged mains or pipes, each half coupling is formed in two halves bolted together longitudinally of the pipe or main, and the packing is jointed around the pipe or main. The coupling may be formed with a second taper to receive a second packing ring of larger diameter than the first to steady the coupling on the main or pipe. The two tapers may be connected by a parallel portion in the bore.

The packing is preferably in the form of a cord rubber ring which in drawing up the two halves of the coupling will roll a distance on the pipe equal to its circumference, whilst each half coupling will travel approximately twice this distance. As the ring reaches the reverse cone it expands into it and stabilises the coupling. A parallel portion may be provided in place of the reverse taper. Alternatively the taper may extend the full length of the coupling.

Sealing washers or gaskets are provided between the adjacent flanged faces of the coupling.

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